Abstract

This article offers the first reading of human excrement in agricultural novels by Gustave Flaubert and Émile Zola. Drawing on insights from ecocriticism and psychoanalysis and focusing on the 'dirty nature' so rarely considered in green studies, I show that these writers challenge the boundary between humans and the rest of the natural world. Whereas urban sanitation, pollution and public health are well studied in nineteenth-century France, less interest has been shown in the agronomic debates in the 1840s–60s regarding the role of our own excrement in the ecological system. Socialist philosopher Pierre Leroux drew on these debates to develop an agricultural model called the 'circulus' reusing human faeces as fertilizer and Flaubert and Zola explore the possibilities of this system in *Bouvard et Pécuchet* (1880) and *La Terre* (1887). Ultimately, however, excrement is exposed in their work as a form of truth about our bodies and our place within the ecosystem.

Keywords: excrement, ecocriticism, the body, Flaubert, Zola

'Il n'a jamais été plus spéculé sur l'excrément humain qu'il ne l'a été fait à Paris depuis quelques années', notes the president of the Paris sewers commission in 1881.[i] The management of human faeces was one of the most fiercely debated topics in nineteenth-century French medicine, science and politics, and it had important repercussions on culture and society.[ii] With the onset of urbanization came a demographic explosion and a resulting abundance of excrement on a visual and olfactory level. All major nineteenth-century writers refer to sewage, manure and faeces in their novels, but the role of the novel in understanding humanity's relationship with our own waste matter has remained unexplored.[iii] Historians have focused on the attempts made to control excrement in ever growing cities through sewer

building and public hygiene measures.[iv] Scarcely any interest, however, has been shown in excrement in the rural sphere and the emphasis placed in France at this time on human faeces as an important contribution to the ecological system.[v] Moving away from the focus on dirt in the urban environment,[vi] this article will analyze agricultural novels which explore the possibilities as well as the dangers of excrement to human beings.

I use the terms 'excrement' and 'faeces' as these terms refer to the matter discharged from the digestive system without making a value judgement on the substance, unlike the more understated term 'bodily waste' which is more ambiguous and also indicates worthlessness and superfluity.[vii] Although filth and mud pervade the nineteenth-century novel,[viii] I focus specifically on excrement and the period in which discussion of faecal recycling was at its height, the 1840s–1860s. Drawing on insights from ecocriticism and psychoanalysis, I examine Flaubert's *Bouvard and Pécuchet* (1880) and Zola's *La Terre* (1887) which are set in this period, and argue that they explore the vacillation between repulsion on the one hand and valorization on the other, but that both ultimately address excrement as a form of truth about our bodies and our place in the ecosystem.

Ecocriticism

'Green studies' is only beginning to be adopted by scholars of French literature, as argued in a recent issue of *Dix-Neuf* on ecopoetry.[ix] There has been a particular lack of interest in the realist novel, overshadowed by the traditional link between ecological awareness and Romanticism. Despite Zola's focus on the relationship between human beings and the earth, for example, there are no ecocritical studies of *La Terre*. This article aspires beyond gap-filling, however (indeed such a gap cannot hope to be filled by one article alone), and addresses a different kind of ecology in literature. Annie Smith has recently argued for 'un réalisme vert' in George Sand's writing, and Agnez Kneitz reads Zola's *Germinal* (1885) as

'environmental protest'.[x] But rather than such moral forms of environmental awareness or justice, I am more concerned with the less obvious but more unsettling forms of 'nature' in the novel. Such a focus opens up new possibilities for reading Flaubert, for example, who, with his reputation as a closeted scribbler and his contention that 'je ne suis pas *l'homme de la Nature*', may seem a surprising candidate for ecocritical study.[xi]

Recent ecocritical thinking has moved away from the model of reverence and the notion of Nature as 'a self-contained form suspended afar'[xii] and highlights instead the interconnectedness of all things. Stacy Alaimo terms this awareness of our inseparability from the environment 'trans-corporeality' whereas Timothy Morton refers to 'a vast, sprawling *mesh* of interconnection without a definite centre or edge'.[xiii] Moreover, of immediate relevance to this article is the move towards a dirtier ecocriticism. Anthony Lioi urges us to 'give dirt its due',[xiv] for example, by focusing on the figure of the swamp, and Morton calls for a 'dark ecology' that involves loving the disgusting, the dirty, and the ugly.[xv] Confronting the less alluring aspects of what we term nature, such perspectives offer a particularly potent means of acknowledging the connections between ourselves and our environment. In my examination of excrement in Flaubert and Zola, I also draw on Helen Sullivan's 'dirt theory' which focuses on the 'dirty nature' so often neglected in green studies.[xvi] Sullivan's position is developed as 'an antidote to nostalgic views rendering nature a far-away and "clean" site' and considers dirt as both nourishing and potentially deadly.[xvii] By examining and embracing dirt, the aim is to challenge the belief that there is no boundary between us and nature.

Whereas such critics have examined swamps, dust, sand, and toxic substances, however, none have focused on excrement. Alain Corbin argues that this bodily product must be considered if we are to explain 'the present vitality of the ecological dream'.[xviii] Indeed, if the key task for ecocriticism is 'a reconsideration of the idea of "the human"',[xix] then

excrement is essential to this project. Thinkers such as Lacan and Bataille have argued that the need to hide or eradicate faeces is what distinguishes us from animals, and that thinking about the substance takes us to the heart of what it means to be human.[xx] If we are no longer in control over our own excrement, what do we become? As both a natural product and a process inflected by a range of social and cultural frameworks, excrement is situated precisely at the supposed boundary between the human and the non-human.

Certain critics understand dirt-aversion as a relative concept: a social, cultural, or psychological phenomenon. Anthropologist Mary Douglas, for example, has shown that dirt avoidance and repulsion towards excrement existed in all sorts of societies long before the development of bacteriology. She argues that we shun dirt not because of fear of contagion or disease, but because it 'offends against order'. [xxi] Eliminating dirt can thus be understood as a positive effort to organise the environment. Douglas's observation that 'dirt is essentially disorder' echoes Freud's understanding of dirt as 'matter in the wrong place',[xxii] and the claim that cleaning and purifying are a means of creating structure out of the disorder of existence can also be compared with Julia Kristeva's assertion that 'it is […] not lack of cleanliness or health that causes abjection but what disturbs identity, system, order.'[xxiii] Other scholars challenge such social and psychological relativism and focus on biological and genetic history.[xxiv] However, our dirt-removing actions inherited from our Neolithic past are intertwined with the history of human societies, and even the most strident calls to focus on materiality continue to offer theories and analysis. Historian of medicine Virginia Smith argues, for example, that we have developed ideologies that 'co-opt' the danger and power of dirt.[xxv]

In accordance with dirt theory's call for both ecological and cultural attention,[xxvi] this article combines ecocritical theory with insights drawn from psychoanalysis, as these two methodologies offer particularly helpful insights in thinking about excrement. Psychoanalysis

has long identified connections, for example, between excrement and erotic pleasure; money; aggression and the pre-symbolic.[xxvii] Further, if ecocriticism essentially deals with 'interconnectedness',[xxviii] then there are contrasts to be drawn between this aim and the psychoanalytic subject's sense of identity as founded on a boundary between the self and other. This basic position is central in examining excrement since humanity's engagement with the substance has repeatedly ben read using concepts of boundaries and thresholds.[xxix] By bringing such hypotheses into contact with an ecological perspective, we can offer new readings of our relationship with the material world as an uneasy oscillation between boundaries and connections.

The nineteenth-century novel provides a particularly apt source for such reflections since, at the moment when society was transitioning from the land-based *Ancien Régime* to the modern system of capitalism, the relationship between human and nature was increasingly under threat, and the novel, in its capacity to engage with the ambiguous, the difficult and the unsettling, emerges as a valuable space in which to interrogate the implications of this transition.

Flaubert

Flaubert repeatedly refers to human excrement in his writings. Many statements in his correspondence, for example use 'la merde' to denigrate contemporary society.[xxx] But Flaubert also brings attention to the fructifying properties of excrement in a letter of 1853 where he points to '[l]es décompositions fécondantes' which take place in the latrine:

> Qui sait à quels sucs d'excréments nous devons le parfum des roses et la saveur des melons? A-t-on compté tout ce qu'il faut de bassesses contemplées pour constituer une grandeur d'âme? tout ce qu'il faut avoir avalé de miasmes écœurants, subi de

> chagrins, enduré de supplices, pour écrire une bonne page? Nous sommes cela, nous autres, des vidangeurs et des jardiniers. Nous tirons des putréfactions de l'humanité des délectations pour elle-même. Nous faisons pousser des bannettes de fleurs sur ses misères étalées. Le Fait se distille dans la Forme et monte en haut, comme un pur encens de l'Esprit vers l'Éternel, l'immuable, l'absolu, l'idéal.[xxxi]

Flaubert highlights the value of manure here in a way that prefigures Victor Hugo's vision of faecal recycling in *Les Misérables* (1863):

> Ces affreux tonneaux de la voirie, ces fétides écoulements de fange souterraine que le pavé vous cache, savez-vous ce que c'est? C'est la prairie en fleur, c'est de l'herbe verte, c'est du serpolet et du thym et de la sauge, […] c'est du foin parfumé, c'est du blé doré, c'est du pain sur votre table, […] c'est de la vie. Ainsi le veut cette création mystérieuse qui est la transformation sur la terre et la transfiguration dans le ciel.[xxxii]

There are striking parallels between these passages, particularly the introduction of a spiritual dimension. Flaubert brings in a host of immaterial categories as the dominant subject (artists) is replaced by a nebulous one which extends upwards through a series of abstract nouns. The final image of rising incense prefigures passages from *Un Cœur simple* and *Madame Bovary* in which the heroines believe themselves to be elevated into an abstract, spiritual sphere.[xxxiii] Hugo also extends the process of recycling into a form of transfiguration 'dans le ciel.' These pronouncements can be contrasted with Baudelaire's allusions to the latrine in the 1860s.[xxxiv] Whereas Flaubert urges us not to forget the 'chimie merveilleuse' of the toilet, Baudelaire attaches a negative value to the latrine and uses this metaphor to link his contemporary

George Sand with baseness, bestiality, and an acquiescence of the earthly flows of time. Peter Dayan argues that, for Baudelaire, excrement is always 'a form of degradation', an acceptance of earthly life and a denial of the absolute.[xxxv] For Flaubert and Hugo, on the other hand, this most bodily of substances can lead to the transcendence of the body and ascension to the ideal.

These passages by Flaubert and Hugo also echo the key principles in the recycling theory of socialist philosopher Pierre Leroux. Drawing on the work of agronomists such as Boussingault and Payen, who showed that human manure could increase agricultural production, Leroux devised a model termed 'le circulus' in which human excrement would be used as fertilizer in farming.[xxxvi] By creating this system, Leroux was deliberately rejecting Malthus' law, according to which the number of people on earth will outstrip the food supply, with 'la véritable loi de la Nature', in which there is never any food shortage since 'tout homme est capable de reproduire sa subsistence, en utilisant ses matières excrémentielles.'[xxxvii] Leroux's plan was part of a broader pattern within socialist thought whereby self-sufficiency frees the individual from the shackles of the wage economy. The reappropriation of excrement in achieving social reform is seen, for example, in the writings of Henry Mayhew and Edwin Chadwick in England, who drew on Leroux's ideas.[xxxviii] Karl Marx also denounced the non-use of human sewage as characteristic of capitalism.[xxxix] Conceptualizing the relations between humans and the rest of nature as a 'metabolism', Marx identified an 'irreparable rift' in this metabolism in the nineteenth century due to the separation of human beings from the natural conditions which form the basis for their existence.[xl] Marx continued, however, to place man in the sovereign position, viewing labour as 'a process between man and nature, a process by which man, through his own actions, mediates, regulates and controls the metabolism between himself and nature'.[xli] For Leroux,

on the other hand, the circulus offered 'une nouvelle conception de la vie': a new way of thinking about the role of humans in the natural world. [xlii]

Hugo, exiled in Jersey at the same time as Leroux, was directly influenced by the circulus.[xliii] Flaubert is often disparaging towards Leroux,[xliv] but he did read many of his writings espousing the circulus system,[xlv] and like Hugo, he emphasizes the power of manure and its ability to turn putrefaction into life. Whereas Hugo, however, does not examine excrement in further detail,[xlvi] Flaubert repeatedly returns to the question of defecation. 'Des excréments humains' are launched at the Carthaginians in *Salammbô*, for instance, and Flaubert views literary creation itself as a scatological process.[xlvii] Flaubert's allusions to excrement have thus far been subsumed by critics into his wider preoccupation with putrefaction and decay.[xlviii] But such an approach fails to acknowledge the specificity of faecal matter as exceptional and yet ordinary, both part of 'nature' and of ourselves.[xlix]

Although Flaubert seems to regard manure's alchemical power as a means of reaching transcendence, at other times it is the anithesis of the ideal. In *Madame Bovary*, for example, 'l'engrais' is associated with the ridiculed Homais (p. 268) and it repeatedly stands as a bathetic counterpoint to Emma's dreams, surging forth during her conversations with potential lovers (pp. 230, 281) or sticking to her shoes, 'tout empâtées de crotte' (p. 316).[l] It is acknowledged that the development of '[de] bons engrais' (p. 280) is crucial to agricultural success, and Emma herself blossoms as if by manure: 'Jamais madame Bovary ne fut aussi belle qu'à cette époque; […]. Ses convoitises, ses chagrins […] *comme font aux fleurs le fumier*, la pluie, les vents et le soleil, l'avaient par gradations développée, et elle s'épanouissait enfin dans la plénitude de sa nature' (p. 322, added emphasis). But here again there is a sardonic bite, as Emma's beauty is brought down to the level of the earthly whereas, moments before, she imagined moving increasingly further from this domain: 'Il me semble qu'au moment où je sentirai la voiture s'élancer, ce sera comme si nous montions en

ballon, comme si nous partions vers les nuages' (p. 322). In her plans to flee with Rodolphe, Emma both literally and figuratively imagines leaving the countryside behind. Emma's rejection of the rural sphere and her constant striving beyond the materiality of her surroundings therefore undermines the seemingly positive manurial simile.

The complex figuring of excrement as both disgusting and valuable and its positioning as both ideal and material is further developed in *Bouvard et Pécuchet* (1880). In this novel, set in the 1840s, the protagonists leave Paris to start a new existence on a farm. Central to this existence is the production of manure: there are repeated references to the necessity of getting holding of it, different methods of producing it and reflections on how to use it.[li] During the mid-nineteenth century, the depletion of soil fertility was the leading environmental concern in European and North American society, as the break of the soil nutrient cycle brought about by capitalist agriculture led to a sense of crisis in the sector.[lii] At the same time, in the wake of Justus von Liebig's path-breaking research in the 1830s, an enhanced understanding of agricultural chemistry led to a range of scientific arguments between the 1840s and 1860s in favour of using human excreta as fertilizer. The agronomic works Flaubert consulted for *Bouvard et Pécuchet* all advocate the agricultural use of human faeces, and the protagonists ultimately use their own dejections to fertilize the land.[liii]

Bouvard and Pécuchet's use of their own excrement initially appears to be motivated by a Leroussian focus on the place of humankind within organic life. For example:

> Pécuchet fit creuser devant la cuisine, un large trou, et le disposa en trois compartiments, où il fabriquerait des composts qui feraient pousser un tas de choses dont les détritus amèneraient d'autres récoltes, procurant d'autres engrais, tout cela indéfiniment; — et il rêvait au bord de la fosse, apercevant dans l'avenir, des

> montagnes de fruits, des débordements de fleurs, des avalanches de légumes. (p. 69).[liv]

It is this vision of organic abundance which motivates Pécuchet to find an alternative source of manure in his own excrement a few lines later. The passage might be read as an illustration of Leroux's reflection that 'la Nature a établi un cercle dont la moitié s'appelle *production* et l'autre moitié *consommation*'.[lv] Cyclicity is highlighted in the passage through the continuous pattern of detritus and growth, the repetition of 'd'autres', and the adverb 'indéfiniment'. The sense that these processes are infinite ties in with Leroux's affirmation that 'la subsistance humaine […] est potentiellement *infinie*, en vertu de la *fécondité infinie* de toutes les espèces'.[lvi] The repeated image of the grave ('un trou', 'la fosse') is overcome as the sentence projects into the future and death is transcended, in an echo of Flaubert's images of eternity in his letter of 1853. The protagonists' rejection of paid work in the city in favour of producing their own subsistence also echoes Leroux's circulus which obviates the need for paid labour. Whereas in psychoanalytic theories gold operates as a substitute for faeces,[lvii] in Leroux's system, such associations are reversed, as faeces replace money in a new 'economy of excrement'.[lviii] Bouvard's cry, 'c'est de l'or! c'est de l'or' (p. 81), suggests such a new form of currency and a rethinking of the copyists' relationship with the rest of society.

However, the copyists continue to depend on the approbation of society and attempt to sell their agricultural products. The wheat is unattractive to customers 'à cause de son odeur' (p. 81), in a disgusted response that is prefigured in the narrator's comment: 'Enfin, après beaucoup de recherches, malgré les instances de Bouvard, et abjurant toute pudeur, il prit le parti "d'aller lui-même au crottin"!' (p. 69). Four increasingly critical qualifications precede the act of defecation. This circumlocution and exclamation mark reveal a sense of

discomfort and even horror towards the bodily process. However, the emphasis on the infinite reminds us not only of Leroux, but also of the expansion and cyclicity of meaning so central to Flaubert's style. The indirect discourse in these passages (in the use of the conditional 'Pécuchet […] *fabriquerait* des composts qui *feraient* pousser un tas de choses' and the change in pronoun 'il prit le parti "d'aller *lui*-même au crottin"') blurs the distinction between the narrator's horror and Pécuchet's own attitude. Such blurring complicates and disturbs the apparently harmonious collaboration between Pécuchet and his environment. As in the reference to Emma's blossoming, this passage undercuts the possibility of idyllic relations between humans and the rest of nature, in a reminder of Morton's dark ecology which 'puts hesitation, uncertainty, [and] irony […] back into ecological thinking'.[lix] By gesturing towards the negative understanding of excrement and our fear of the substance, Flaubert highlights both its power and its ambiguous status.

Moreover, the circulus model is undone in *Bouvard et Pécuchet* since the copyists cannot fully commit to its central principle of egalitarianism. As Ceri Crossley points out, 'Leroux's theory [...] offered an alternative to the discourse of mastery that characterized so much of nineteenth-century thought, to the discourse that represented humankind as a demi-god controlling nature, overcoming all resistance and requiring that matter submit to the dictates of the mind'.[lx] Crossley does not examine literary texts in his analysis, but his summary of the circulus provides a useful contrast to Bouvard and Pécuchet's position: rather than rejecting 'the discourse of mastery', these characters ceaselessly attempt to gain control over their environment in their constant pursuit of conclusive answers and through their farming activities. With regards to ecology, we might say that it is the Saint-Simonian position which is characterised by Bouvard and Pécuchet rather than that of Leroux, as the former regarded the earth 'as passive matter (gendered as female) waiting to be fertilized by (male) activity'.[lxi] Bouvard and Pécuchet's need for ownership over their surroundings, for

example, is revealed in their farming practice which is associated with masculine authority,[lxii] and in their insistence on seeing natural formations as extensions of their bodily selves: 'pour Bouvard et Pécuchet tout devint phallus' (p. 169). Such a move can be understood as a form of protection or even resistance against the material substances that surround them. Psychoanalytic theorist Norman Brown explains, for instance, that 'for civilized man the crucial defence mechanism is sublimation', a process where sexual energy is redirected towards new objects.[lxiii] Attempting to impose their own identity onto their environment, Bouvard et Pécuchet undermine the ecological premise that 'trans-corporeal subjects must [...] relinquish mastery', and respond instead with attempts at containment and control.[lxiv]

The environment, however, cannot be contained: Bouvard and Pécuchet's agricultural efforts fail ('le colza fut chétif, l'avoine médiocre', p. 81), and the land is capricious: 'la Butte enfin dépierrée donnait moins qu'autrefois' (p. 81). Fluctuating, ever-moving matter resists reification: 'tout passe, tout coule. La création est faite d'une matière ondoyante et fugace' (p. 150). Although Bouvard and Pécuchet undermine the principle of solidarity with the environment through their attempts at control, the novel itself challenges such efforts at human mastery by revealing the shifting, contingent nature of organic matter. Rather than a reverential attitude towards nature or one that valorises its containment, Flaubert's text pushes reflections on the environment to the point of absurdity, where 'Bouvard ne croyait même plus à la matière' (p. 302). The novel thus goes beyond the harmonious cycle conceived by Leroux and offers a more conflicted and troubled model. As Jonathan Tresch argues, through his circulus, Leroux was developing a material and practical means of returning to a virtual Eden: 'Ce que toute science véritable devrait […] montrer à l'homme, c'est le moyen de rentrer dans cet Eden que la Nature contient virtuellement'.[lxv] In his irony, negativity and uncertainty, Flaubert moves beyond such nineteenth-century perceptions of ecology and comes closer to the more radical positions proposed by recent theorists.

Zola

The relationship between man and earth is at the centre of much of Zola's work, and no more so than *La Terre* (1887), noted by Dominique Laporte as the author's 'most persistent exhibit of shit'.[lxvi] Zola was famously castigated by his contemporaries for this so-called 'scatological' novel, with the 'Manifeste des cinq' claiming that 'on se croirait devant un recueil de scatologie',[lxvii] accompanied by an engraving of Zola pushing a cart of manure. Reviewer Léon Hugonnet asserts in 1887 that *La Terre* is 'un monument de fumier',[lxviii] and more recently, David Trotter also refers to Zola's 'figuring of modern life as cesspool'.[lxix] Despite the notorious associations between Zola and scatology, however, there has been no critical analysis of excrement in his work, which does much more than simply 'exhibit' the substance.

Excrement is on one level portrayed in meliorative terms in *La Terre*, as in the opening of Part Five when 'la Beauce […] se couvrait de fumier':

> Partout, les pièces se bossuaient de petits tas, la mer houleuse et montante des litières d'étable et d'écurie; tandis que, dans certains champs, on venait d'étendre les tas, dont le flot répandu ombrait au loin le sol d'une salissure noirâtre. C'était la poussée du printemps futur qui coulait avec cette fermentation des purins; la matière décomposée retournait à la matrice commune, la mort allait refaire de la vie; et, d'un bout à l'autre de la plaine immense, une odeur montait, l'odeur puissante de ces fientes, nourrices du pain des hommes. (709).[lxx]

The land is introduced in liquid terms indicative of flow and movement within the 'plaine immense' and the passage is pervaded by a sense of energy driving upwards ('montante', 'montait'). The focus on cyclicity ('*re*tournait' '*re*faire') highlights the process of transmutation metonymically conveyed in 'le pain'. The stench of manure, usually regarded as one of its most repugnant qualities, is a sign of vitality and strength.

This passage is echoed in a speech delivered by the farmer, Hourdequin:

> Quand on pense que la vidange seule de Paris pourrait fertiliser trente mille hectares! […] Voyez-vous ça ici, voyez-vous la Beauce couverte et le blé grandir! D'un geste large, il avait embrassé l'étendue, l'immense Beauce plate. Et lui, dans sa passion, voyait Paris, Paris entier, lâcher la bonde de ses fosses, le fleuve fertilisateur de l'engrais humain. Des rigoles partout s'emplissaient, des nappes s'étalaient dans chaque labour, la mer des excréments montait en plein soleil, sous de larges souffles qui en vivifiaient l'odeur. C'était la grande ville qui rendait aux champs la vie qu'elle en avait reçue. Lentement, le sol buvait cette fécondité, et de la terre gorgée, engraissée, le pain blanc poussait, débordait en moissons géantes. (711)

Hourdequin's grandiose tableau of fecundity builds on the connections made in the previous quotation between land, manure, and flow. The Beauce is, again, 'covered' by manure, but this time it is of human origin. A vocabulary of abundance ('un geste large', 'l'immense Beauce', '[des] moissons géantes') echoes the 'immensity' of the earlier scene and the image of manure as sea resurfaces, confirming a sense of onward momentum that is an important part of the circulus. As in Pécuchet's compostian reverie where mountains of fruits and vegetables are perceived 'dans l'avenir', in these passages from *La Terre* fecundity is projected into the future: 'c'était la poussée du printemps *futur*', and Hourdequin envisions

the potential rather than the actual. The passages thus enact the Leroussian model of rethinking faeces as a creative basis for the future rather than a remnant of the past. The transformation of manure into bread also echoes Leroux who speaks of making 'du pain avec les excréments humains'.[lxxi] Like Flaubert, Zola shows that from decomposing matter comes new life. But whereas Flaubert's images of elevation moved into the spiritual realm, Zola remains resolutely focused on the material.

The circulus model is not only a utopian vision in this text: it is put into practice by the character known as la Frimat. Henri Mitterand refers to letters Zola received from an agronomist as the basis for la Frimat's fertilizing methods,[lxxii] but her reasoning that such practice is 'raisonnable' when faced with 'le manque de fumier' (pp. 471–472) also ties in with Leroux's presentation of the circulus as a practical solution to the problem of hunger.[lxxiii] Zola made use of the 'engrais' entry in the Larousse dictionary in preparation for *La Terre* and this dictionary includes an entry on Leroux's circulus.[lxxiv] La Frimat is successful in her endeavours — she goes to market 'pliant sous la charge de deux paniers énormes' (p. 471) — but she fails as a businesswoman since her nickname, 'la mère Caca' (p. 471), renders her a social outcast. At the market, 'des bourgeoises s'étaient détournées de ses carottes et de ses choux superbes, avec des nausées de répugnance' (p. 471). These ladies' rejection of la Frimat is a rejection of their own links with faeces, links which challenge the boundary between themselves and the disorderly world of nature. In Kristeva's psychoanalytic theory of abjection, excrement 'stands for the danger to identity that comes from without: the ego threatened by the non-ego, society threatened by its outside, life by death'.[lxxv] Such destabilising potential is indicated here in the women's sense of nausea, which prefigures Sartre's dismantling of boundaries between the self and surrounding objects.

Further, the Kristevean abject is not an object but is 'opposed to the "I"'.[lxxvi] Abjection is always a form of 'self-abjection' since what the subject is repudiating is its own

state of connectedness with the maternal body. The boundary between the self and the non-self is thus not only a form of protection but also a source of fear and revulsion, since there is always the threat of collapse and contamination. These ideas are particularly useful when thinking about excrement which is both not-me (expelled, rejected), and part-of-me. Repulsion towards excrement is therefore repulsion towards one's own self. La Frimat's recycling practices, for example, also threaten her own stability. So full are her overflowing baskets, her wrists are said to be at breaking point (p. 506) and, as in Hourdequin's vision of excremental recycling, where the uncontained 'sea' of manure leads to abundant crops growing 'en moissons géantes' (p. 711), there is a sense of overpowering, barely manageable growth in la Frimat's produce. The direct link between this abundance and her use of excrement is highlighted, for example, in the reference to her chamber pot: 'le chou au pied duquel elle a vidé son pot est le roi des choux, et comme grosseur, et comme saveur' (p. 711). The crossing of the line between the human and non-human is exemplified in this monstrous, humanoid cabbage.

The threat to human stability is further exposed in this novel through the attraction to excrement. Hourdequin's vision of regenerating matter, for example, is explicitly activated by his sensual response to manure: 'La puanteur du fumier [...] l'avait un peu ragaillardi. Il l'aimait, la respirait avec une jouissance de bon mâle, comme l'odeur même du coït de la terre' (p. 710). Such references to sexual arousal encourage the reader to interpret the fertilizing process as orgasmic release: 'lui, dans sa *passion*, voyait Paris, Paris entier, *lâcher* la bonde de ses fosses, *le fleuve fertilisateur* de l'engrais humain' (p. 711, added emphasis). But rather than harmonious collaboration, this sexually charged imagery suggests an attempt to ravish or possess, with the earth occupying the passive, traditionally female position. The conventional devaluation of women relative to men through the association of women with

nature is thus switched.[lxxvii] Much as in *Bouvard et Pécuchet*, the male subject turns the process of faecal recycling into a form of control over the natural world.

Hourdequin is not the only one excited by manure. Whilst listening to Hourdequin's talk of manurial recycling, Jean unloads his cart in an image suggestive of defecation: 'il s'était mis à *décharger* le fumier' (p. 710, added emphasis). Although excrement unleashes the most powerful reaction of disgust in human beings,[lxxviii] psychoanalytic theory identifies connections between the expulsion of excrement and erotic pleasure. Freud, for example, posits the 'anal stage' as the second phase of libidinal development in children, argues that this stage leads to a preoccupation with the retention and expulsion of faeces and the pleasure that this process can entail.[lxxix] For Kristeva, the attraction to excrement is a means of returning to the abject maternal body.[lxxx] For both Freud and Kristeva, excrement is eroticized in a way that foregrounds both repulsion and attraction, and Kristeva specifically argues that 'abjection is above all ambiguity.'[lxxxi] Jean's response to human manure certainly indicates his ambivalence: 'cette idée […] [lui] amusait et dégoûtait' (p. 712). He is uncomfortable and yet repeatedly drawn to the substance.

The upshot of the two men's fascination with faecal matter is the breaking down of their delineated selves: 'Hourdequin le suivait, au milieu de la buée chaude *qui les noyait* tous les deux' (p. 711, added emphasis). If the ecological thought is the realization that things are 'less integrated, less independent, than we believed', the interaction with excrement here leads to such a dissolution of boundaries.[lxxxii] It is precisely the image of a collapsing boundary that domiantes the scene in which Jean proposes to Françoise in the midst of manure: 'Une vieille barrière pourrie s'ouvrait là, [...], et tous deux restèrent accotés, lui dehors, elle dedans, avec le ruisseau de purin qui leur coulait entre les jambes' (p. 690). The characters' positioning highlights the presence of a barrier, but the fragile fence allows the manure to pass through. The focus on their legs and flowing substance brings a sexual

dimension that is intensified as the passage continues, referring twice to dampness and the spreading of legs.[lxxxiii] Whereas the flow of manure is a vivifying force in the fertilizing of the Beauce, here it takes on a more subversive dimension, as the passage prepares the reader for a later scene in which Françoise is practically annihilated by excrement. Lioi's ecocritical project of 'becom[ing] […] the thing we dare not touch'[lxxxiv] is put into practice here as Françoise, 'ayant du fumier jusqu'aux cuisses', is 'submergée presque': 'elle disparaissait [...] au milieu de la vapeur chaude [...] dans l'asphyxie de cette fosse remuée' (p. 720). Overwhelmed by, even entombed in excrement, Françoise is conflated with manure before her body is broken down into disparate parts: 'elle avait l'air […] saine et forte, comme si elle eût poussé là, et que cette odeur de fécondité fût sortie d'elle. Les mains sur les hanches, la gorge ronde, elle était maintenant une vraie femme' (p. 720). These comments, which depersonalise Françoise and render her a sexual object, also reflect Jean's attempts to give himself a definitive role by acting as spectator: by subjecting Françoise to the process of disintegration, he attempts to counteract the threat to his own sense of self.

Through such interactions with excrement and the resulting dissolution of the subject's ego, Zola challenges conceptions of identity and selfhood constructed through barriers between inner and outer and proposes a deeper enmeshment of the subject and the abject. Whereas *La Terre* initially offers a utopian vision of faecal recycling, the pastoral idyll of collaboration between man and earth is undermined firstly by society's outright rejection of human manure and secondly, by the unsettling implications of our underlying attraction to faeces.

Embracing excrement

A potential alternative to such approaches is to embrace excrement as it is. In many scenes in *La Terre* faeces are affirmatively used, especially by Jésus-Christ. He intervenes in his

brother's wedding, for example, by launching 'une volée de merde' (p. 528) into the scene and in a later argument, he asserts: 'moi, qui n'ai rien à vendre, je vous ai tous dans le cul. […] la terre, je la prends, je chie dessus!' (p. 562). The reference to 'le cul' is clearly tied with Jésus-Christ's positioning outside the capitalist structure ('qui n'ai rien à vendre'), and he mobilizes excrement as a way of rejecting the social conventions of work, civic responsibility and marriage. The intrusion of excrement in the wedding scene, for instance, has a profound impact on the social gathering. Matthew Gandy has referred to 'the urban uncanny' to describe the effect of the nineteenth-century sewers on perceptions of space.[lxxxv] A comparable anxiety of displacement is found in this scene in *La Terre*, as a series of brief clauses shows the wedding guests' dazed, uncoordinated response: 'On courut, on regarda sur la place, sur la route, derrière le mur' (p. 528). Like the splattered dresses deemed 'perdues', the guests are momentarily 'lost' after the disruption. Although engagement with excrement is a daily occurrence in this agricultural setting, its unexpected appearance in the nuptial scene leads to confusion and disorientation in keeping with Freud's exploration of the uncanny as the familiar made frightening.[lxxxvi]

La Terre repeatedly returns to the lower body and anal exhalations such as in Jésus-Christ's flatulent 'fusillade' (p. 647) against the bailiff. The representative of law and order is made ridiculous as he regresses into a crawling 'imbécile' and finally an insect (p. 647). One of the minor characters also uses defecation as a form of protest: 'Ce soir-là, on surprit Lengaigne, enragé, qui posait culotte à la porte de son rival victorieux.' (p. 688). Jésus-Christ's actions are to be read as a form of attack, as is made clear through the extended military metaphor ('—Attention! je tire!', 'terrifié par la détonation, Vimeux s'étala de nouveau', 'les coups de feu continuaient', p. 647). In Freud's writings on the infantile stage of anal erotism, one of the symbolic meanings that may be attached to the anal product is its status as a weapon. In particular, the sadistic desire to master and control the object is

paralleled by the ambiguous pleasures surrounding retention and expulsion.[lxxxvii] Here, Jésus-Christ uses his anal exhalations as a means of taking control of the bailiff and humiliating him by literally forcing him to lower himself to the ground.

Such acts might also be read in light of cultural theories which posit inversions of 'high' culture as a challenge to prevailing structures. In Bakhtin's theorization of the carnival, for example, liberation from the established order is achieved through hierarchy inversion.[lxxxviii] However, Jésus-Christ pointedly offers no alternative value system and his recourse to scatology is perhaps closer to David Trotter's enabling, energising category of 'mess' as an event rather than a condition.[lxxxix] Jésus-Christ uses the subversive power of excrement not to privilege new categories but to disrupt social expectations. The thinker who perhaps offers the most extreme affirmation of faeces is the 'excremental philosopher',[xc] Bataille, who argues that the anus contains 'all the possibilities for the liberation of energy' now confined to the superior regions of the brain and eyes.[xci] Such liberating possibilities are explored in *La Terre* through Jésus-Christ, whose socially unacceptable behaviour also leads to laughter, foreshadowing Bataille's connection between the mouth and the anus.[xcii] The spectacle of the attacked bailiff, for instance, results in a form of bodily relief: 'La Trouille [...] se tenait le ventre, par terre, en gloussant comme une poule. Le père Fouan avait retiré sa pipe de la bouche, afin de rire plus à l'aise.' (p. 647). Jésus-Christ inspires a sense of freedom and release as he celebrates rather than rejects the power of the anus and its products.

Excrement as truth

Whilst Jésus-Christ cannot be yoked to any particular philosophical or political position, his defiant acts might be linked to Morton's conception of the ecological thought as a 'radical openness' which entails a sense of honesty and an engagement with all that can be understood as our surroundings.[xciii] The understanding of excrement as a potentially

liberating, interstitial space beyond hierarchies has also led some theoreticians of disgust to see faeces as a way of reaching the "thing itself".[xciv]

The connections between this dirty nature and truth or honesty offer a rich source of reflection on the representation of truth in art. Flaubert, for example, repeatedly conceptualizes the writing process with reference to excrement, portraying artists as 'des vidangeurs' who draw on 'des putréfactions de l'humanité' to create art.[xcv] Such comments have often been taken at face value to indicate the creation of aesthetic beauty from the putrefactions of humanity, prefiguring Baudelaire's image of poetic alchemy.[xcvi] Florence Vatan, for example, reads Flaubert's attraction to decomposing matter as an allegory for the aesthetic challenge of crafting beauty out of abjection.[xcvii]

Yet, whilst the yearning for the absolute is present throughout Flaubert's writing, his persistent return to excrement highlights his awareness of its underlying impossibility. Alaimo warns that 'attention to the material transit across bodies and environments may render it more difficult to seek refuge within fantasies of transcendence and imperviousness.'[xcviii] Flaubert's conception of art in itself reveals his constant alertness to this problematic. Although his fecund latrine leads to 'l'Esprit' and 'l'Éternel', the use of capital letters suggests the emptiness of such grandiose abstractions, and the artist ultimately pushes 'des bannettes de fleurs sur [l]es misères étalées de [l'humanité]', in an image echoed in 1880: 'La poésie, comme le soleil, met de l'or sur le fumier.'[xcix] The abjection never fully disappears. Rather than a neatly circumscribed process of transformation, Flaubert's writing is predicated on the balance between the disgusting and disorderly (truth) on one hand and the beautiful and regulated (ideal) on the other, and these two apparent opposites are constantly in flux in his work. Whereas at certain moments the uncontainable flow of matter is a cause of panic and loss of meaning — such as when Bouvard cries, Je n'y crois pas, au règne mineral!' (p. 150) — at other times it is understood as a form of becoming: 'rien n'est.

Mais tout devient' (*BP*, p. 302). Bouvard and Pécuchet (inadvertently) highlight the implications of this constant movement and pliability as a form of connection between all organisms: 'Comment se fait-il que le même suc produise des os, du sang, de la lymphe et des matières excrémentielles?' (p. 118), echoing Flaubert's musings on the origin of roses and melons in the 'sucs d'excréments'. Whether Flaubert consciously considered himself a commentator on the natural environment or not, his work refuses to posit human beings as stable entities separate from the rest of the material world.

In the final chapter of *Bouvard and Pécuchet*, for example, the protagonists acknowledge the necessity of material existence: '*Il faut* que la page s'emplisse, que "le monument" se complète' (p. 401, emphasis added). Whereas their phallic interpretations of nature were a form of sublimation, of rerouting their own physical desires, here, without necessarily celebrating corporeality, the copyists deny any reference to spiritual transcendence and position themselves firmly within the material environment. The allusions to literary creation through the filling of the page and the metaphor of text as a 'monument' lend this assertion a metatextual dimension which is itself highly physical. The writer must accept or at least confront bodily reality. Indeed, Flaubert views his own authorial position as a fruitless attempt to keep bodily dejections at bay: 'J'ai toujours tâché de vivre dans une tour d'ivroire. Mais une marée de merde en bat les murs'.[c] In this sense, Flaubert's conception of the artist as a 'vidangeur' can paradoxically be read both as an aspiration towards abstraction and an acknowledgement of the inherently physical, material nature of existence.

In the case of Zola, some of his contemporaries certainly regarded his connection with scatology as an indication of his writing's truth-telling status. In 1880, for example, at the time of 'les odeurs de Paris', an article describing the unbearable stink of the overflowing human dejections appeared in *Le Figaro* bearing the title 'un chapitre inédit de M. Zola'. It is almost certain that Zola did not write the piece, but the fact that the editors chose Zola as the

author reveals the extent to which his writing had become synonymous with the unvarnished representation of filth. He is described, for example, as 'the only one capable of *truly* describing the stench of the capital'.[ci]

The writing of excrement, however, leads not only to authorial reflections but also to questions about the reader. This makes the attraction to excrement in *La Terre* all the more troubling since, by continuing to read, we validate the attraction. The agricultural harmony in the opening of Part Five, for instance, aligns the reader with the use of manure as a natural, productive process. The thematic and semantic connections between this scene and Hourdequin's speech prepare us to sanction the extension to human excrement. The fact that Hourdequin's 'poème du fumier' is inspired by the stench of manure is unsettling since our enjoyment of the passage's formal beauty and utopian grandeur makes us complicit in the eroticization of faeces.[cii] In later scenes, references to faecal matter are more elliptical. All we are told when Butteau attacks the bailiff, for example, is that he responds to the summons with 'le mot, le même, l'unique:—Merde! Et un pot plein de la chose fut vidé' (p. 702). But such concision leaves the detail to the reader's own imagination. In the final pages, for instance, Jésus-Christ states: '—J'ai faim de chier. Et, les jambes lourdes, écartées, il se hâta, il disparut à l'angle du mur' (p. 810). His disappearance forces us to visualize the act ourselves. The call for 'a more honest ecological art' which includes ugliness, horror and disgust is arguably answered here.[ciii] By demanding our own confrontation with abjection, Zola goes beyond any superficial conceptions of veracity and develops a more profound and disarming form of truth which is the reality of our own bodies.

Conclusion

The question of how to deal with human excrement continues to pose major challenges in the twenty-first century, not only for those populations without access to 'improved' sanitation,[civ]

but also for developed countries which damage the environment and human health through the spreading of 'biosolids' from sewage disposal.[cv] The question seems to hinge on our understanding of the substance: is excrement disgusting waste or valuable fertilizer? Flaubert and Zola refuse to offer a simple answer to this question. Both explore the concept of faecal recycling and its concomitant utopianism, but also develop an ambivalence that goes beyond any straightforward transformation of the disgusting into the beautiful or valuable.

In his call for 'a symbolic place in ecocriticism for dirt and pollution', Lioi foresees a time when we 'might wield the influence we all hope for in the name of conservation and restoration, survival and flourishing.'[cvi] Such calls echo Leroux's emphasis not only on the practical use of excrement but also its moral and social value. Flaubert and Zola, however, cannot be characterized by such explicit ethical or political engagement nor is their work so optimistically serene. A recurrent trope in their texts is the psychological threat posed to the stability of the human subject by the overwhelming power of organic matter. Against this threat, individuals at times try to assert their own identity through domination. At other times they reject the bodily realm completely. Dirt and faecal matter, however, are exposed as a form of truth which cannot be escaped since, by rejecting faeces, we erect a false distinction between ourselves and the rest of the organic environment. By focusing on excrement in these authors' writings, we are therefore reminded that 'dirty nature' is always with us, in a challenge to our most basic assumptions of self and world as separate entities. Going beyond their contemporaries' models of nature as mastered matter or virtual Eden, Zola and Flaubert develop a darker but more open concept of ecology.

Notes

[i] E. Deligny, *Observations du Président de la commission des eaux et égouts* (Paris: Imprimerie Chaix, 1881), p. 25.

[ii] 'No substance provoked as much hand-wringing, outrage, investigation and reportage as did this most elemental and natural of human productions' (David S. Barnes, *The Great Stink of Paris and the Nineteenth-Century Struggle Against Filth and Germs* (John Hopkins University Press, 2006), p. 208).

[iii] Dominique Laporte's *Histoire de la merde* (Paris: C. Bourgois, 1978) did not spark any precedents.

[iv] See, for example, Alain Corbin, *Le Miasme et la jonquille* (Paris: Flammarion, 1986); Donald Reid, *Paris Sewers and Sewermen* (Cambridge, Massachusetts: Harvard University Press, 1991).

[v] See Martin Monestier, *Histoire et bizarreries sociales des excréments des origines à nos jours* (Paris: Le Cherche Midi, 2012), p. 265. Environmental historian Sabine Barles focuses on the urban perspective. See Barles, *L'Invention des déchets urbains. France: 1790–1970* (Seyssel: Champ Vallon, 2005).

[vi] See, for example, *Filth: Dirt, Disgust, and Modern Life*, ed. by William A. Cohen and Ryan Johnson (London: University of Minnesota Press, 2005); *Dirt. The Filthy Reality of Everyday Life*, ed. by Kate Forde (London: Profile Books, 2011).

[vii] Dictionaries include 'faeces' as a synonym of 'excrement' and vice versa. See, for example, *The Chambers Dictionary* (Edinburgh: Harrap, 1993), pp. 587 602. I tend to prefer the term 'excrement' since the word's etymology highlights the process of expelling from the body.

[viii] See, for example, Susan Harrow, 'Food, Mud, Blood: The Material Narrative of Zola's *La Débâcle*', *Dalhousie French Studies*, 76 (Fall 2006), 51–61; Maria Scott, 'Stendhal's Muddy Realism', *Dix-Neuf*, 16.1 (2012), 15–27.

[ix] See Daniel A. Finch-Race and Julien Weber, 'Editorial: The Ecocritical Stakes of French Poetry from the Industrial Era', *Dix-Neuf*, 19.3 (November 2015), 159–166.

[x] Smith, 'George Sand's *réalisme vert*', in *Ecocritical Approaches to Literature in French*, ed. by Douglas L. Bodreau and Marnie M. Sullivan (New York: Lexington Books, 2016), pp. 41–61; Kneitz, 'Social Novels as a Means of Framing Nineteenth-Century Environmental Justice', *Interdisciplinary Studies in Literature and Environment*, 22.1 (Winter 2015), 47–62 (p. 59).

[xi] Flaubert, *Correspondance*, ed. by Jean Bruneau, 6 vols (Paris: Gallimard, 1973–2007), IV (1998), p. 824, 3 July 1874, original emphasis. Tim Unwin has, however, highlighted the pantheism in Flaubert's early writing. See Tim Unwin, 'Flaubert's Pantheism', *French Studies*, XXXV, no. 4 (1981), 394–406.

[xii] Morton, *The Ecological Thought* (Cambridge, MA: Harvard University Perss, 2010), p. 5.

[xiii] Alaimo, *Bodily Natures: Science, Environment, and the Material Self* (Bloomington: Indiana University Press, 2010), p. 2; Morton, *Ecological Thought*, p. 8, added emphasis.

[xiv] Lioi, 'Of Swamp Dragons: Mud, Megalopolis, and a Future for Ecocriticism', in *Coming into Contact: Explorations in Ecocritical Theory and Practice*, ed. by Annie Merrill Ingram et al (Athens; London: University of Georgia Press, 2007), pp. 17–38 (p. 17).

[xv] Morton, *Ecology without Nature* (Cambridge, MA: Harvard University Press, 2007), p. 195.

[xvi] Sullivan, 'Dirt Theory and Material Ecocriticism', *Interdisciplinary Studies in Literature and Environment*, 19.3 (Summer 2012), 515–531 (p. 515).

[xvii] Ibid.

[xviii] Corbin, *The Foul and the Fragrant* (Cambridge: Harvard University Press 1988), p. 232.
[xix] Greg Garrard, *Ecocriticism* (London: Routledge, 2012), p. 16.
[xx] Lacan, *Psychoanalytic Politics: Freud's French Revolution* (New York: Basic Books, 1978), p. 238; Bataille, *The Accursed Share: An Essay on General Economy* (New York: Zone Books, 1991), p. 53.
[xxi] Douglas, *Purity and Danger* (Routledge: London, 1966), p. 2
[xxii] Freud, 'Character and Anal Erotism' (1908), in *On Sexuality. Three Essays on the Theory of Sexuality and Other Works*, trans. by James Strachey, ed. by Angela Richards (London: Penguin, 1977), pp. 205–215 (p. 213).
[xxiii] Kristeva, *Powers of Horror. An Essay on Abjection*, trans. by Leon Roudiez (New York: Columbia University Press, 1982), p. 4.
[xxiv] See, for example, Virginia Smith, 'Evacuation, Repair and Beautification. Dirt and the Body', in *Dirt*, pp. 8–34; Valeria Curtis and Adam Biran, 'Dirt, Disgust, and Disease: Is Hygiene in Our Genes?', *Perspectives in Biology and Medicine*, 44 (2001), 17–31.
[xxv] Smith, 'Evacuation', p. 34.
[xxvi] Sullivan, 'Dirt Theory', p. 529.
[xxvii] See Freud, 'Character and Anal Erotism', pp. 209–211, 213–15; 'Infantile Sexuality' (1905), in *On Sexuality*, pp. 88–126 (103–104); Norman Brown, *Life against Death. The Psychoanalytic Meaning of History* (Middletown, Connecticut: Wesleyan University Press, 1985), pp. 190–192; Kristeva, *Powers of Horror*, pp. 70–71.
[xxviii] Morton, *Ecological Thought*, p. 23.
[xxix] See, for example, Douglas, *Purity and Danger*, p. 4; William Ian Miller, *The Anatomy of Disgust* (London: Harvard University Press, 1997), p. 100; David Inglis, *A Sociological History of Excretory Experience* (Lampeter: Edwin Mellen Press, 2000), p. 22.
[xxx] See, for example, this comment in 1853: 'Où se tourner pour trouver quelque chose de propre? De quelque côté qu'on pose les pieds on marche sur la merde. Nous allons encore descendre longtemps dans cette latrine.' (Flaubert, *Corr*., II (1980), p. 244).
[xxxi] Flaubert, *Corr.*, II, p. 485, 23 December 1853.
[xxxii] Hugo, *Les Misérables*, ed. by Maurice Allem (Paris: Gallimard, 1951), pp. 1281–1282.
[xxxiii] See Flaubert, *Œuvres Complètes*, ed. by Claudine Gothot-Mersch et al, 3 vols (Paris: Gallimard, 2001–2013), III (2013), p. 338; *Trois contes*, ed. by Pierre-Marc de Biasi (Paris: Garnier Flammarion, 2007), p. 78.
[xxxiv] Baudelaire refers to George Sand, for example, as 'cette latrine' (Baudelaire, *Fusées, Mon cœur mis à nu, La Belgique déshabillée*, ed. by André Guyaux (Paris: Gallimard, 1986), p. 99).
[xxxv] Peter Dayan, 'Baudelaire at his Latrine: Motions in the *Petits poèmes en prose* and in George Sand's Novels', *French Studies*, XLVIII, no. 4 (1994), 416–424 (p. 424).
[xxxvi] Leroux began sketching out his 'circulus' theory in 1834. It is most fully explained in his *Aux états de Jersey, ou sur un moyen de quintupler, pour ne pas dire plus, la production agricole du pays* (London: Universal Library, 1853). For a useful summary of the theory, see Armelle Le Bras-Chopard, *De l'Égalité dans la différence: Le Socialisme de Pierre Leroux* (Paris: Presses de la Fondation nationale des sciences politiques, 1986), pp. 296–302.
[xxxvii] Leroux, *Jersey*, p. 25. See also Leroux, *Malthus et les économistes, ou Y aura-t-il toujours des pauvres?* (Boussac: Imprimerie de Pierre Leroux, 1849), pp. 5, 51.
[xxxviii] See Anne la Berge, 'Edwin Chadwick and the French Connection', *Bulletin of the History of* Medicine, 62 (1988), 23–42.
[xxxix] See Marx, *Capital: A Critique of Political Economy*, ed. by Ernest Mandel (London: Penguin Books, 1976–1981), 3 vols, III (1981), trans. by David Fernbach, pp. 195–198.

[xl] Ibid., p. 949. See John Bellamy Foster, *Marx's Ecology. Materialism and Nature* (New York: Monthly Review Press, 2000), p. 163. The centrality of 'people-nature relations' in Marx's thought is also examined in Paul Burkett, *Marx and Nature: A Red and Green Perspective* (London: Macmillan 1999), p.1. See pp. 88–90; 116–119; 127–128.
[xli] Marx, *Capital*, I (1976), trans. By Ben Fowkes, p. 283
[xlii] Leroux, *La Grève de Samarez* [1863], ed. by Jean-Pierre Lacassagne, 2 vols (Paris: Klincksieck, 1979), I, p. 260.
[xliii] See Jean-Pierre Lacassagne, 'Victor Hugo, Pierre Leroux et Le Circulus', *Bulletin de la faculté des lettres de Strasbourg*, 48 (1970), 389–400.
[xliv] See Flaubert, *Corr*., I (1973), p. 47, III, p. 401. Leroux and other utopian socialists are ridiculed in *Bouvard et Pécuchet*, p. 245.
[xlv] See http://www.dossiers-flaubert.fr/b-4892-1 and http://www.dossiers-flaubert.fr/b-3790-1. [accessed 15 December 2015].
[xlvi] Hugo draws on the imaginative potential of underground spaces, but human excrement was only flushed into the sewers from 1895. See Monestier, *Histoire et bizarreries sociales des excréments*, p. 124.
[xlvii] *Salammbo*, *OC*, III, p. 778; 'Je sens contre la bêtise de mon époque des flots de haine qui m'étouffent. Il me monte de la merde à la bouche […]. J'en veux faire une pâte dont je barbouillerais le XIX[e] siècle' (Flaubert, *Corr*., II, p. 600).
[xlviii] See, for example, Florence Vatan, 'Le vivant, l'informe et le dégoût: Baudelaire, Flaubert et l'art de la (dé)composition', *Revue Flaubert*, 13 (2015), http://flaubert.revues.org/2436. [accessed 10 November 2015].
[xlix] For more on the unique place of faeces in human culture, see Inglis, *A Sociological History of Excretory Experience*, especially Chapter 6.
[l] Flaubert, *OC*, III.
[li] See Flaubert, *Bouvard et Pécuchet*, ed. by Stéphanie Dord-Crouslé (Paris: Flammarion, 2011), pp. 68, 69, 75–76, 80–81.
[lii] See Foster, *Marx's Ecology*, p. 152.
[liii] Flaubert consulted several agronomic texts including Maxime Paulet, *Chimie agricole* (1845); L. comte de Gasparin, *Cours d'agriculture*, 5 vols (Paris: Bureau de la Maison rustique, 1843–1848); Eugène Landrin, *Nouveau manuel complet de la fabrication et de l'application des engrais* (Paris: Libraire encyclopédique de Roret, 1864).
[liv] See also *Bouvard et Pécuchet*, p. 77.
[lv] Leroux, *Jersey*, p. 9, original emphasis.
[lvi] Ibid., added emphasis.
[lvii] Freud, 'Character and Anal Erotism', p. 214.
[lviii] Dana Simmons, 'Waste not, Want Not: Excrement and Economy in Nineteenth-Century France', *Representations*, 96 (Fall 2006), 73–98 (p. 87).
[lix] Morton, *Ecological Thought*, p. 16.
[lx] Crossley, 'Pierre Leroux and the Circulus: Soil, Socialism and Salvation in Nineteenth-Century France', in *Histoires de la terre. Earth Sciences and French Culture 1740–1940*, ed. by Louise Lyle and David McCallam (Amsterdam: Rodopi, 2008), pp. 105–118 (p. 107).
[lxi] John Tresch, *The Romantic Machine: Utopian Science and Technology after Napoleon* (Chicago: University of Chicago Press, 2012), p. 247.
[lxii] It is Bouvard, for example, the least effeminate of the two charcters, who undertakes most of the farming. See Claude Mouchard, 'Terre technologie, roman à propos du deuxième chapitre de *Bouvard et Pécuchet*', *Littérature*, 15 (1974), 65–74 (p. 69, n.3). Bouvard considers the farmland as 'son domaine' (p. 101).
[lxiii] Brown, *Life against Death*, p. 281.

[lxiv] Alaimo, *Bodily Natures*, p. 17.
[lxv] Tresch, p. 248, Leroux, *Jersey*, p 87.
[lxvi] Laporte, *History of Shit*, trans. by Nadia Benabid and Rodolphe el-Khoury (Cambridge, Massachusetts: MIT, 2000), p. 38.
[lxvii] 'Manifeste des Cinq', in Zola, *Les Rougon-Macquart*, 4 vols (Paris: Gallimard, 1967), IV, pp. 1525–1529 (p. 1528).
[lxviii] Léon Hugonnet, *La Gazette de France*, 5 Sep 1887. Quoted by Guy Robert, *La Terre d'Émile Zola: étude historique et critique* (Paris: Belles Lettres, 1952), p. 444.
[lxix] Trotter, *Cooking with Mud: The Idea of Mess in Nineteenth-Century Art and Fiction* (Oxford: Oxford University Press, 2000), p. 199.
[lxx] Zola, *Les Rougon-Macquart*, IV.
[lxxi] Leroux, *Samarez*, I, p. 270.
[lxxii] See *Les Rougon-Macquart*, IV, p. 1557 n.1.
[lxxiii] See, for example, Leroux, *Jersey*, p. 193.
[lxxiv] See Larousse, *Grand Dictionnaire universel du XIX^e siècle* (Geneva: Slatkine, 1982 [1869]), IV, p. 335.
[lxxv] Kristeva, *Powers of Horror*, p. 71.
[lxxvi] Ibid., p. 72.
[lxxvii] See, for example, Douglas A. Vakoch, 'Introduction', in *Feminist Ecocriticism* (New York: Lexington Books, 2012), pp. 1–12 (p. 2).
[lxxviii] See Paul Rozin et al, 'Disgust', in *Handbook of Emotions* (Guilford Press: New York; London, 2000), pp. 637–653 (p. 646); Colin McGinn, *The Meaning of Disgust* (Oxford: Oxford University Presss, 2011), p. 18.
[lxxix] Freud, 'Infantile Sexuality', p. 103.
[lxxx] See Kristeva, *The Powers of Horror*, p. 54.
[lxxxi] Ibid., pp. 9–10.
[lxxxii] Morton, *Ecological Thought*, p. 17.
[lxxxiii] See p. 691.
[lxxxiv] Lioi, 'Of Swamp Dragons', p. 32.
[lxxxv] Gandy, 'The Paris Sewers and the Rationalization of Urban Space', *Transactions of the Institute of British Geographers*, 24. 1 (1999), 23–44 (p. 25).
[lxxxvi] See Freud, 'The "Uncanny"', in *Writings on Art and Literature* (Stanford, California: Stanford University Press, 1997), pp. 193–233 (p. 195).
[lxxxvii] In 'The Disposition to Obsessional Neurosis' (1913), Freud hypothesizes that the anal stage is the period in which sadistic tendencies take over. See Brown, *Life Against Death*, p. 191. For more on the use of excrement as weapon in this period, see Olivier Berger, 'Les Excréments de l'occupant allemande en 1870–71: un tabou du scandale, de la dérive et de la profanation', *Dix-neuf*, 17, no. 2 (July 2013), 197–209.
[lxxxviii] See Michel Bakhtin, *Rabelais and his World* (Cambridge, Massachusetts: MIT, 1968), pp. 147–149. Harrow refers to a comparable moment in *La Débâcle* (1892) where the act of defecation on the battlefield becomes a 'carnivalesque celebration of freedom and defiance' (Harrow, 'Food, Mud, Blood', p. 58).
[lxxxix] Trotter, *Cooking with Mud*, pp. 20–21.
[xc] André Breton, *Manifestoes of Surrealism* trans. by R. Seaver and H. R. Lane (Ann Arbor: University of Michigan Press, 1969), p. 184.
[xci] Bataille, *Visions of Excess: Selected Writings, 1927–1939*, ed. and trans. by Allan Stoekl (Minnesota: University of Minnesota Press, 1985), p. 77.
[xcii] Bataille, *Œuvres complètes*, 12 vols (Paris: Gallimard, 1970), II, pp. 72, 71.
[xciii] Morton, *Ecological Thought*, p.11.

[xciv] See Winfried Menninghaus, *Disgust: The Theory and History of a Strong Sensation*, trans. by Howard Eiland and Joel Golb (New York: State University of New York Press, 2003), pp. 11, 399.
[xcv] Flaubert, *Corr*., II, p. 485.
[xcvi] 'Tu m'as donné ta boue et j'en ai fait de l'or' (Baudelaire, *Œuvres complètes*, ed. by Claude Pichois, 2 vols (Paris: Gallimard, Paris 1975), I, p. 192). For more on this aspect of Baudelaire, see Emily Jane Cohen, 'Mud into Gold: Baudelaire and the Alchemy of Public Hygiene', *Romanic Review*, 87.2 (March 1996), 239–255.
[xcvii] Florence Vatan, 'Le vivant, l'informe et le dégoût'.
[xcviii] Alaimo, *Bodily Natures*, p. 16.
[xcix] Flaubert, *Corr*., II, p. 485; V (2007), p. 839, 19 February 1880.
[c] *Corr*., IV, p. 605, 13 November 1872.
[ci] 'Un chapitre inédit de M Zola', *Le Figaro*, August 24, 1880, added emphasis. Translated and quoted by Barnes, *The Great Stink of Paris*, p. 245.
[cii] In his notes, Zola refers to Hourdequin's vision as 'le poème du fumier' (*Les Rougon-Macquart*, IV, p. 1591, n.1).
[ciii] Morton, *Ecological Thought*, p. 17.
[civ] See *Shit Matters. The Potential of Community-Led Total Sanitation*, ed. by Lyla Mehta and Synne Movik (Rugby: Practical Action Publishing, 2011), p. 1.
[cv] See Abby A. Rockefeller, 'Civilization & Sludge: Notes on the History of the Management of Human Excreta', *Current World Leaders*, 39, no. 6 (1996), 99–113, http://www.ejnet.org/sludge/excretahistory3.html [accessed 25 September 2015]. See also recent research on the effects of sewage sludge on embryos: Richard G. Lea et al, 'The foetal ovary exhibits temporal sensitivity to a "real-life" mixture of environmental chemicals', *Nature, Scientific Reports*, 6, 22279 (2016), http://www.nature.com/articles/srep22279 [accessed 22 March 2016].
[cvi] Lioi, 'Of Swamp Dragons', p. 33